Amendments to the claims

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of claims

1. (Currently amended) A self-contained leak location device comprising a housing capable of travelling in a pipeline, the housing accommodating a hydrophone, a timer and a memory, wherein the hydrophone and the timer are capable of generating an output and the memory is capable of recording the hydrophone output with reference to the timer output, said device shaped and sized to travel in the flow of fluid through the pipeline and including a transmitter/receiver to allow the transmission and reception of signals to and from at least one location externally of the pipeline which allows the location of the device with respect to the pipeline to be determined, and wherein said device has substantially neutral buoyancy in the fluid passing through the pipeline so as to be positioned within the fluid <u>out of contact with the pipeline</u> and be swept along the pipeline by the fluid downstream to a retrieval point.

2. (Original) A leak location device according to claim 1 in which the housing comprises a resilient outer surface.

3. (Original) A leak location device according to claim 1 or claim 2 in which the housing is shaped and sized such that the device may be introduced into and retrieved from a pipeline through standard fittings.

4. (Cancelled)

5. (Previously presented) A leak location device according to claim 1 in which the housing is spherical.

6. (Previously presented) A leak location device according to claim 1 in which the housing is an oval shape.

7. (Original) A leak location device according to claim 6 in which the device is arranged such that the centre of buoyancy and centre of gravity lie on its long axis.

8. (Cancelled)

9. (Previously presented) A leak location device according

to claim 1 which is arranged to record the hydrophone output and the timer output as the device passes through the pipeline.

10. (Cancelled)

11. (Previously presented) A leak location device according to claim 1 which is arranged such that in use it is be used to determine that there is a leak and locate the position of that leak.

12. (Previously presented) A leak location device according to claim 2 which comprises an electromagnetic transmitter.

13. (Original) A leak location device according to claim 12 in which the electromagnetic transmitter is a low frequency continuous detector-occasional transmitter (CDOT).

14. (Original) A leak location device according to claim 13 in which the CDOT is arranged to detect low frequency electromagnetic signals and provide an output to the memory of the time at which these were received.

15. (Original) A leak location device according to claim 14

in which the CDOT is arranged such that when a signal is received, the CDOT transmits a signal.

16. (Previously presented) A leak location device according to claim 15 in which when a time passes since last detecting a signal that substantially exceeds a predetermined expected time, the CDOT periodically transmits an alarm signal.

17. (Currently amended) A method of determining the presence and location of leaks in a pipeline comprising:

i) inserting a self-contained leak location device capable of detecting and recording the occurrence of noise into the flow of fluid within the pipeline;

ii) allowing the leak location device to travel through the pipeline with the fluid flow;

iii) causing the leak location device to detect and record noise in the fluid and pipeline; and

iv) causing the leak location device to record the time at which noise is detected and wherein the device is provided to have substantially neutral buoyancy in the fluid passing along the pipeline so as to lie within the fluid out of contact with the pipeline and be swept along the pipeline by the fluid downstream to a retrieval point.

18. (Original) A method according to claim 17 in which the method further comprises retrieving the leak location device from the pipeline downstream to its insertion point.

19. (Original) A method according to claim 17 or 18 which includes the further step of downloading the recorded instances of noise along with the time at which they were detected onto a computing device.

20. (Previously presented) A method according to claim 17 which further comprises recording the time at which the leak detection device is inserted into the pipeline and/or the time at which it is retrieved therefrom.

21. (Previously presented) A method according to claim 17 which further comprises tracking the position of the leak detection device as it travels through the pipeline.

22. (Original) A method according to claim 21 in which tracking is achieved by causing the leak detection device to emit a signal periodically and/or continuously, on receipt of a signal.

23. (Previously presented) A method according to claim 17 which further comprises inserting the device into the

pipeline and/or retrieving the device from the pipeline using a standard fitting.

24. (Previously presented) A method according to claim 17 which further comprises placing surface electromagnetic transmitters and/or receivers at points along the pipe and causing the transmitter/receiver to emit a signal.

25. (Previously presented) A method according to claim 24 which comprises causing the leak detection device to pass beneath a surface transmitter, the leak detection device detecting a signal from the surface transmitter and recording the time at which this occurs.

26. (Previously presented) A method according to claim 24 wherein once the device further detects the signal transmitted from the surface, the device is caused to emit a signal that is detected by the surface transmitter/receiver, causing the transmitter/receiver to display the fact that the leak location device has reached that point.

27. (Previously presented) A method according to claim 17 which further comprises causing the leak location device to

collect acoustical data, comparing the data to predetermined data indicative of a leak and detecting any match with the predetermined data to determine the presence of any leaks and their location along the pipeline that has been traversed.

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Previously presented) A leak location system according to claim 1 wherein the leak location device is used in conjunction with computing means arranged to process data collected by said device.

33. (Original) A leak location device system according to claim 32 in which the leak detection device and the computing means are arranged such that the data may be downloaded from the leak detection device onto the computing means.